

The programme

The Environment Agency will fully consult with all interested parties. These include:-

- the owners of the lake – Arundel Estates
- the water supply companies
- English Nature who are charged with the protection of the SSSI
- local councils
- the public who use the lake and consume the water
- local businesses who rely on the lake for trade

Over the next few months a lot of effort will go into producing an Action Plan for the lake's survival. The cooperation of all parties is vital to produce the quick results we need to meet our goal - a healthy Swan Lake for all to enjoy.

We welcome
Peter

The Environment Agency
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West



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New Life for Swanbourne Lake



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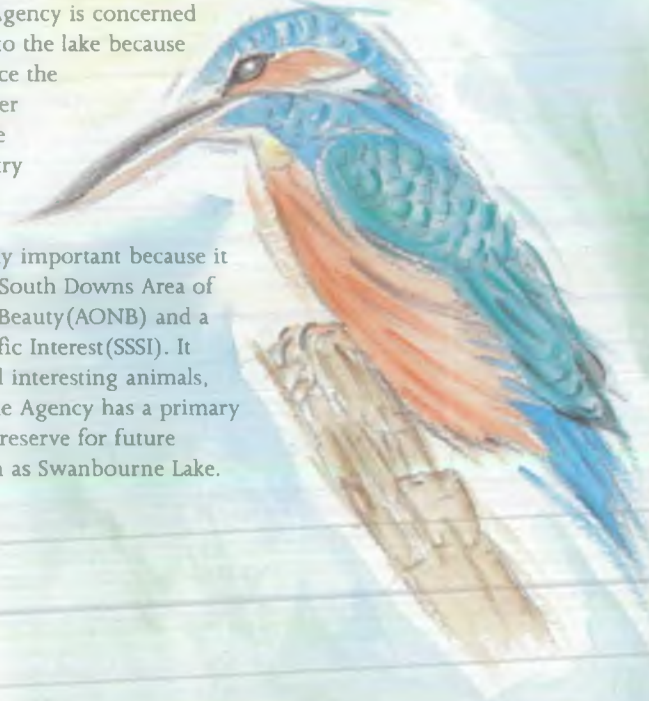
Who we are

The Environment Agency began work on 1 April 1996 and combines the expertise of the National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution (HMIP) and the County Council Waste Regulation Authorities.

The Agency is one of the most powerful environmental regulators in the world with many responsibilities to help protect land, air and water.

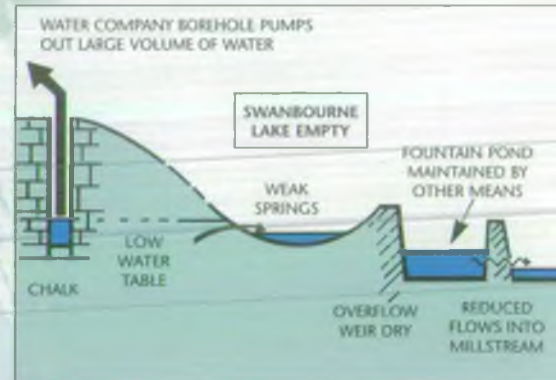
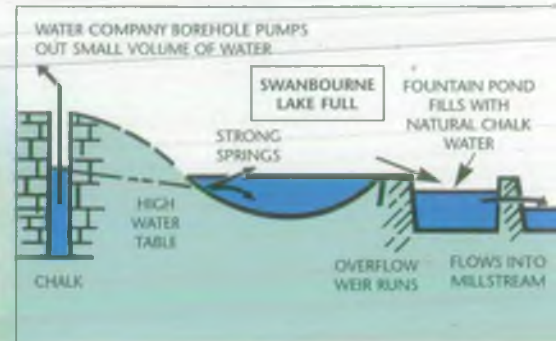
Swanbourne Lake is owned and managed by the Arundel Estate. The Agency is concerned about what happens to the lake because it has a duty to balance the protection of the water environment with the demands from industry and the public.

The lake is particularly important because it is located within the South Downs Area of Outstanding Natural Beauty (AONB) and a Site of Special Scientific Interest (SSSI). It also contains rare and interesting animals, plants and insects. The Agency has a primary duty to protect and preserve for future generations sites such as Swanbourne Lake.



How the water reaches Swanbourne Lake

Cross sections show how borehole pumping affects the springs feeding water to the Lake



The lake and its history

The history of Swanbourne lake can be traced back to before the Domesday Book. It was originally used as a mill pond and to supply water to Arundel Castle. The lake and surrounding area has long been renowned for its outstanding natural beauty.

In 1837 on the day the famous landscape artist John Constable died he was putting the final touches to his last great oil painting "Arundel Mill and Castle". This masterpiece features the mill, the historic castle and the magnificent lake nestling beneath the ramparts. The mill was demolished shortly afterwards but much of the area remains the same as it was in Constable's day.

The area around the lake is home to many rare plants, animals and insects. The wildlife includes tawny owls, nightingales, all three British species of woodpecker, sedge and reed warblers, shelducks and tufted ducks, four kinds of bat, foxes, newts and grasssnakes. There are 15 species of invertebrate that have been declared as endangered and under threat of extinction.

Each year over 100,000 visitors come to enjoy the lake and its surroundings.

By kind permission of the Toledo Museum of Art, Ohio, USA

The problem

The water in Swanbourne Lake starts as rainfall on the South Downs. It soaks through the chalk as it flows towards the coast. Before it reaches the sea some of the water emerges in springs which run into the lake.

They are known as the "Blue Springs" because of the distinctive blue tint of the water as it flows from the ground.

However, some water is intercepted before it reaches the lake by a number of boreholes. Southern Water Services and Portsmouth Water Company have licences to pump water from these boreholes to supply residents in Bognor Regis, Littlehampton and Worthing.

All of the boreholes are being operated within the terms of the licence. But they were granted when the behaviour of the underground water was not so well understood. Whilst the Environment Agency has the power to take these licences away it would need to pay compensation to the Water Companies. Alternative water supplies would also need to be found.

There is now evidence to suggest too much water is being intercepted by the boreholes. As a result the lake has gone dry on several occasions in the past few years.

The Agency has identified boreholes at Madehurst, Eastergate, Westergate and Slington as causing problems for the lake.



Why the Agency is asking for a scheme

If no action is taken and the lake continues to dry up some of the unique wetland vegetation will inevitably die. There is already some evidence this is starting to happen.

The death of this vegetation would have a major impact on the wildlife that relies on it for food and shelter.

Among the first victims might be:-

- Daubenton's Bat also known as the Water Bat which needs the still water of the lake to feed
- Emperor and Club-Tailed Dragonflies
- Sedge and Reed Warblers



The scenic beauty enjoyed by thousands of visitors will slowly disappear. Within less than a decade the vista which has been part of the English landscape for hundreds of years will be destroyed.

An action plan is urgently needed to ensure water levels

are maintained and the lake, its unique surroundings and wildlife are saved for future generations.



Proposed solutions



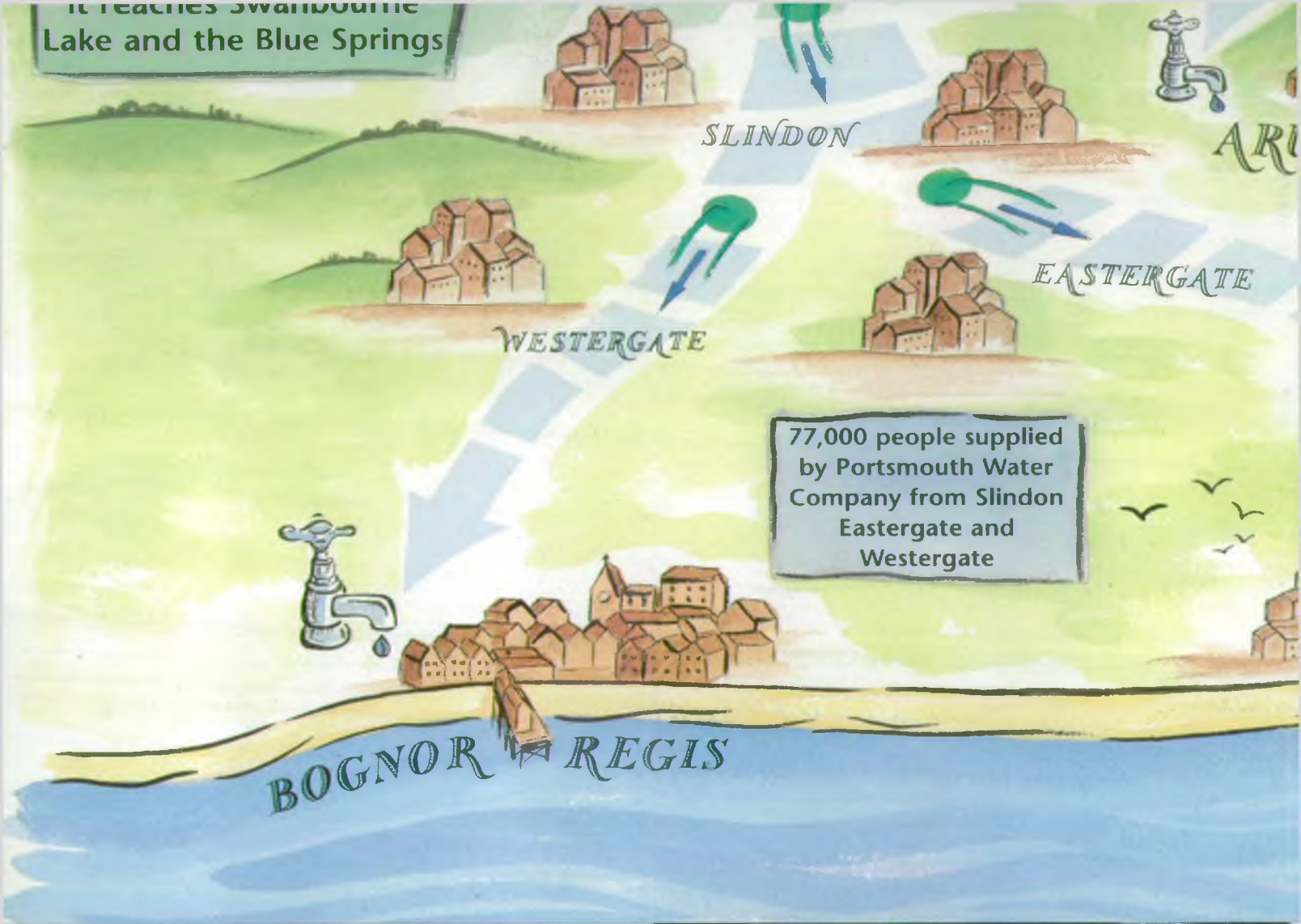
Investigations by the Environment Agency have shown that four boreholes in particular influence the water levels in the lake.

Reducing the amount of water and careful monitoring of the time of year when it is taken from the boreholes would help to solve the problem

There are a number of options to examine. These include:-

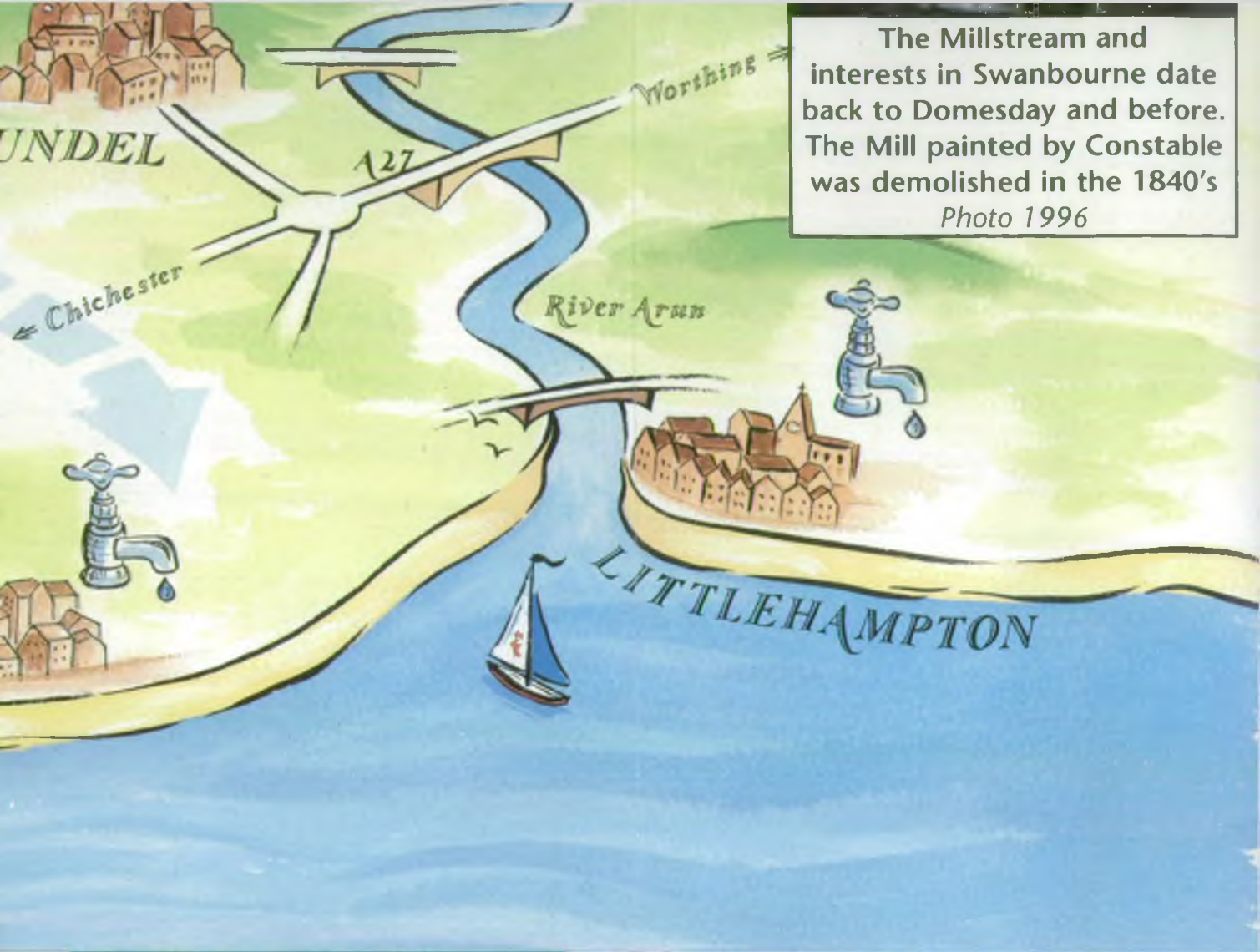
- Topping up the lake from other sources of water
- Recirculation of the water which flows into the Millstream
- Damming up the lake or dredging it to increase the depth
- Lining the lake to stop water leaking out of the lake bed
- Reducing the water taken by the companies.

It reaches Swanbourne
Lake and the Blue Springs



Swanbourne Lake
dried out
Summer 1996





The Millstream and interests in Swanbourne date back to Domesday and before. The Mill painted by Constable was demolished in the 1840's
Photo 1996

Key

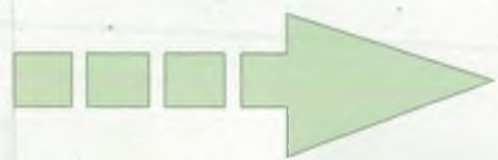
Southern Water Services boreholes for public supply



Portsmouth Water Company boreholes for public supply

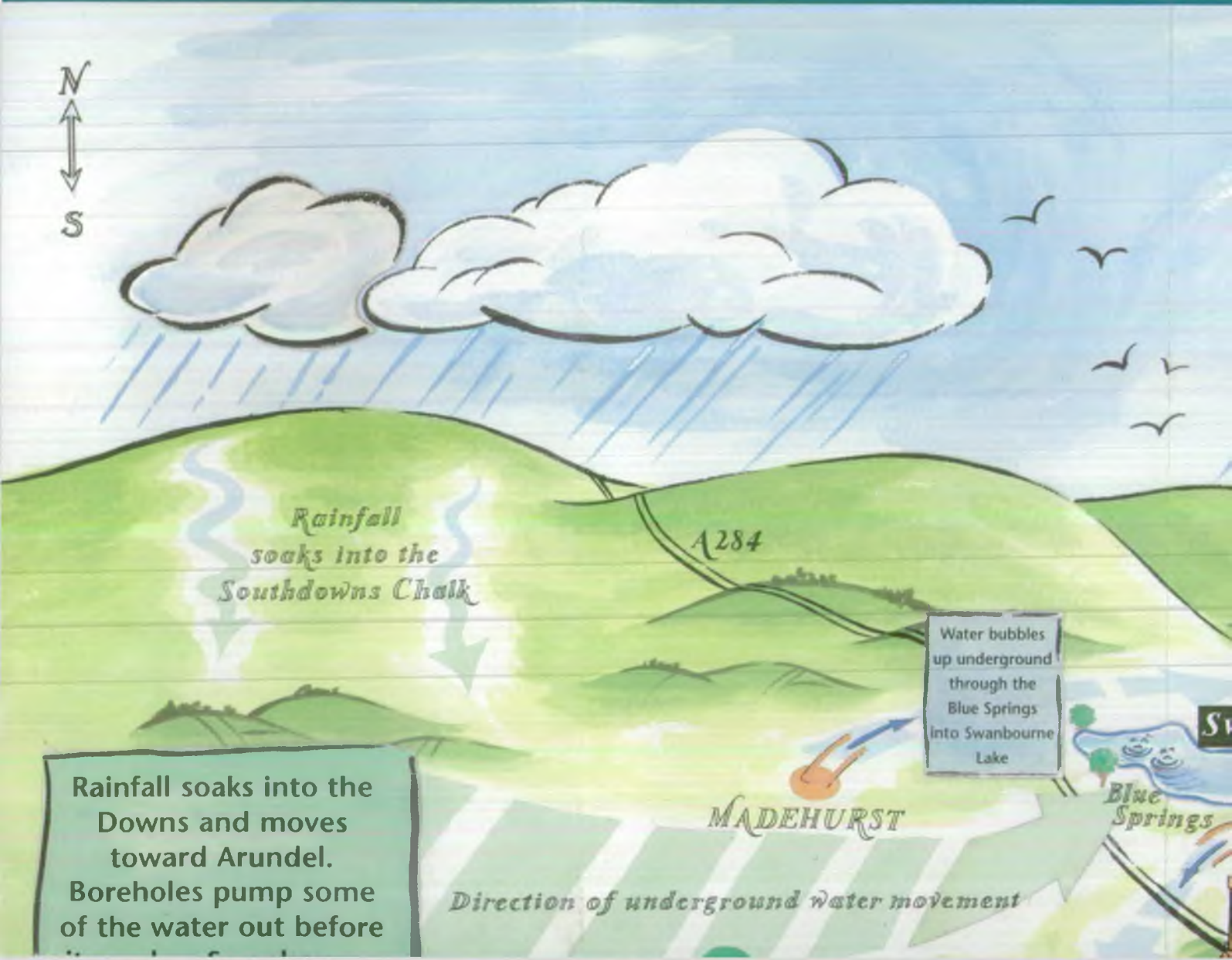


Pumped Drinking Water



Under Ground Water

Swanbourne Lake, Where the water



Rainfall soaks into the Downs and moves toward Arundel. Boreholes pump some of the water out before

Direction of underground water movement

Arundel r g o e s



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The Lake is visited by over
100,000 people every year.
Its amenity value is very high.

Photo 1995

